KERNAN FURNACE COMPANY

UTICA, N. Y.

CATALOGUE AND PRICE LIST OF

WARM AIR FURNACES AND HOT WATER HEATERS

WESTERN OFFICE
JOSEPH F. KERNAN COMPANY,
17 & 19 DEARBORN STREET,
CHICAGO, ILL.

IMPORTANT.

IF YOU wish for information as to the size of Furnace required for heating a certain building, please answer the following questions in order to determine the size and kind of Furnace best adapted to do the work in the most economical and efficient manner.

Is the building an old or a new one? . . . . . .

Style of building—wood, brick or stone? . . . . . .

Is building standing alone or in a block? . . . . . .

Size of building? . . . . . .

How many stories to be heated? . . . . . .

Height of each story. 1st . . . . . 2nd . . . . . .

Height of cellar? . . . . . .

Designate rooms to be heated.
" Size of rooms and hall.
" Location of Chimney and flues
" POINTS OF COMPASS.

} Designate these by a sketch of house. (Ground Plan of each story.)

FOR A CHURCH, PUBLIC BUILDING OR SCHOOL.

Is the building an old or a new one? . . . . . .

Style of building—brick, wood or stone? . . . . . .

Size . . . . . Height . . . . . .

Is the ceiling plastered or finished in wood and covered with felt? . . . . . .

Give description of ventilators and where located . . . . . .

Cellar—give height . . . . . .

Designate Entrance—with lobby, if any.
" Aisles.
" POINTS OF COMPASS.
" Chimney Flues.
" Rooms to be heated
" Size of rooms to be heated.
If basement is to be heated, designate size, height.

} Designate these by a sketch.

Kind of Furnace wanted, Brick or Portable . . . . . .

Fuel to be used—hard or soft coal or wood, or natural gas . . . . . .

GIES & CO., ENGRAVERS AND PRINTERS, BUFFALO, N. Y.

To the Trade.

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THIS Catalogue represents a complete line of warm air furnaces and combination warm air and hot water heaters, constructed from either all CAST IRON, or in part STEEL PLATE, adapted to either anthracite or bituminous coal.

We claim for our heaters GREATER DURABILITY, superior advantages of construction in points of SIMPLICITY and CONVENIENCES, greater power of radiating warm air with the least consumption of fuel to any heretofore manufactured. We are largely interested in the management of the Syracuse Stove Works and recommend the line of "Welcome" stoves and ranges there manufactured. We ask for your patronage with the belief that we can serve your interests.

KERNAN FURNACE CO.

Utica, N. Y., Sept. 1st, 1890.

KERNAN FURNACE.

PORTABLE AND BRICK SET.

DEEP ash pit, large doors for feeding fuel or removing ashes; patent rocking revolving grate; sectional fire pot; solid front divided into an upper and lower section; a large dome with outlets one side of the center; a radiator with an outer encircling flue; surrounding air passages in combination with a central flue and a central air passage. No bolts or rods used. Each part connected to the other by sand cup joints. The large *dome* projecting outwardly affords additional heating surface and naturally comes in contact with the upward current of air. The enlarged *dome* also admits of additional space directly over the heated coals for the gases to expand and intermingle, thereby affording a *perfect* combustion *before* the radiator is reached. The outlets from the dome being at one side of the center avoids any possibility of the gases gaining an outlet through the feed door, and preserves the *apex* of the dome intact, not destroying by an opening this highly heating radiating surface. The radiator receives into its outer encircling flue the thoroughly ignited combustion, and through the damper plates each side of the smoke exit, if desired, admits of a direct draft, or compels the combustion to traverse the entire circuit of the radiator, then through the center flue, surrounding in its passage, the upward current of air.

By this construction, briefly enumerated, the Kernan Furnace claims superiority over all others. In its durability of construction; spacious ash pit; large doors; patented grate; sand cup joints; enlarged and not contracted *dome*, causing

First.—Space within for the expansion and intermingling of gases.

Second.—Additional heating surface.

Third.—Bringing the heated surface directly counter to the upward current of air.

Fourth.—Openings in dome at one side of center thereby avoiding any escape of gas.

Fifth.—Utilizing the upper surface of the dome directly over the center of combustion for the radiation of *warm air*.

The *radiator* receiving from the dome into its outer flue the thoroughly ignited particles of combustion, enhances the efficiency of its radiating strength

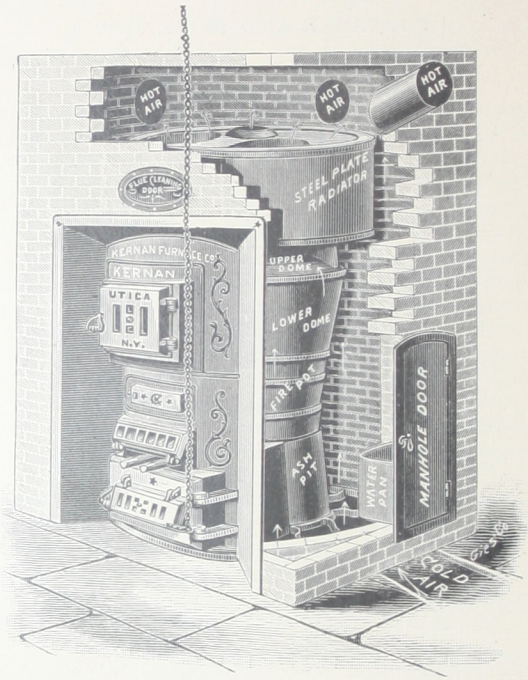
First.—By using the combustion when at its highest degree of heat.

Second.—In carrying the combustion over the dome through the center flue.

Third.—Throughout the entire course traversed surrounding air passages.

Fourth.—In affording a central air passage directly over the center of the dome in the center of the radiator. Thus with a minimum amount of fuel the Kernan Furnace radiates the largest possible amount of warm air, because a *perfect* combustion is consummated *immediately* over the bed of coals, and the heat thus generated in its passage through the radiator, at all times surrounds air passages and its strength is completely exhausted before escaping into the smoke exit.

KERNAN.



Brick Set with Steel Plate Radiator.

FOR HARD OR SOFT COAL.

Including Man Hole Door, Water Pan and Patent Draft Regulator.

• • •

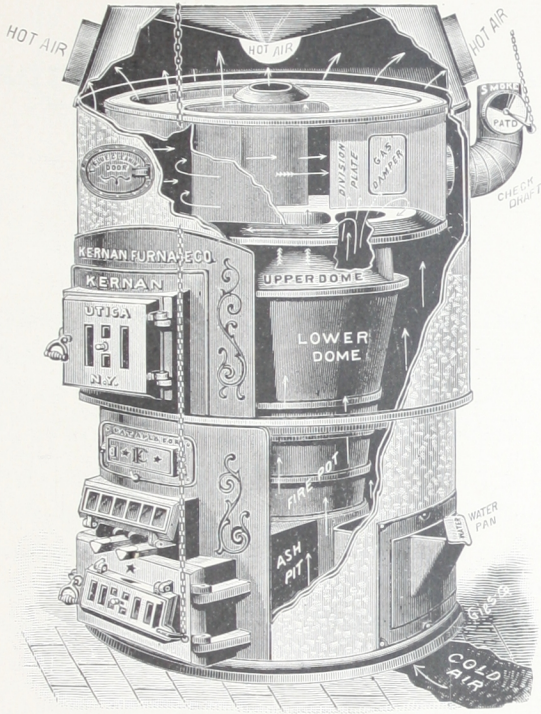
No. 38	$152.00	No. 46	$218.00
" 42	190.00	" 52	285.00

Discount . . . . . per cent.

Covering Bar, per set, extra, net $3.00
Sheet Iron Convex Top, extra, net 3.00

For dimensions see page 23.

KERNAN.



Portable with Steel Plate Radiator.

FOR HARD OR SOFT COAL.

• • •

No. 38, less casings	$140.00	Casings, extra, net	$10.00
" 42, " "	175.00	" " "	12.00
" 46, " "	200.00	" " "	14.00
" 52, " "	260.00	" " "	18.00

Discount . . . . . per cent.

For dimensions see page 23.

Setting and Location of Furnaces.

VENTILATION.

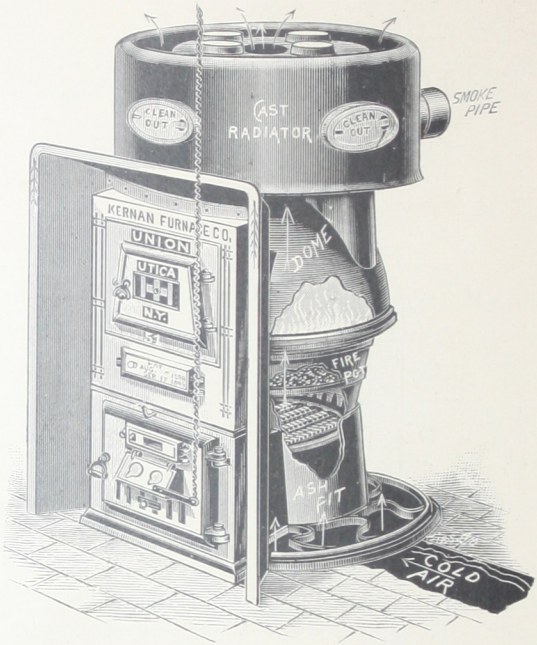
SETTING furnaces, in nearly every instance, the conditions are different, so we can only lay down general rules by following which, the best results can be obtained. Secure as far as possible a central location so that the hot air pipes may be of equal length. Give hot air pipes all possible elevation. The longer pipes should have greater capacity. Pipes carried above first floor should have ⅓ less capacity than those used in rooms of the same size below. Registers should be of larger capacity than the pipes leading to them The hot air chamber above radiator should never be less than 12 in. in height and higher if possible The cold air box should have a capacity of ⅔ of all the hot air pipes and should be taken from the west or north side of the building. In all buildings heated by furnaces there should be some ventilation. This can be secured by using open fire places or by having a warm ventilating shaft connected with rooms to be heated. In churches, halls, etc., where furnace is only used on certain days, an inside cold air duct should be used in connection with outside one, so that when fire is started, the outside one can be shut off and by using the inside one a circulation created and the building quickly and easily heated.

UNION FURNACE.

PORTABLE AND BRICK SET.

A HEAVY, durable furnace. No bolts used in its construction; ash pit, fire pot, dome and radiator connected by sand cup joints; a deep and large ash pit and large feed door. Our patent hexagonal anti-clinker, revolving bar, dumping grate, (see page 24.) Dust flue and sectional fire pot. An enlarged dome with four radiator connections, giving enormous and powerful radiating surface. The combustion ascending into the radiator passes to and through the entire radiator flue before reaching the smoke exit. A continuous current of air supply passes over the heated surface of the enlarged dome and through the air spaces surrounded by the radiator flues. We call special attention to the air chamber through center of radiator This opening directly over center of dome and surrounded by the radiator flues discharges a rapid current of warm air and adds enormously to the heating power of the furnace. Our patent draft regulator is included with every furnace. If desired we can send lift damper in place of patent draft regulator.

UNION.



Brick Set with Cast Iron Radiator.

FOR HARD OR SOFT COAL.

Including Man Hole Door, Water Pan and Patent Draft Regulator.

• • •

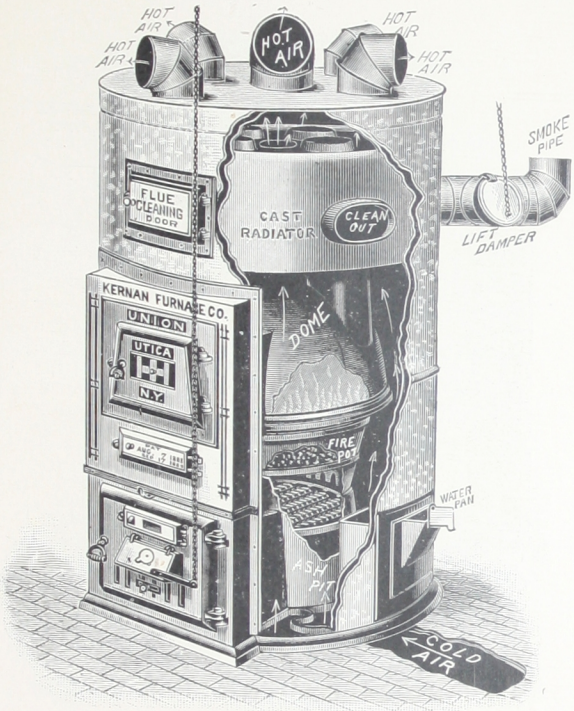
No. 36	$156 00	No. 45	$225.00
" 42	190 00	" 51	265.00

Discount . . . . . per cent.

Covering Bars, per set, extra, net $3.00
Sheet Iron Convex Top, extra, net 3.00

For dimensions see page 23.

UNION.



Portable with Cast Iron Radiator.

FOR HARD OR SOFT COAL.

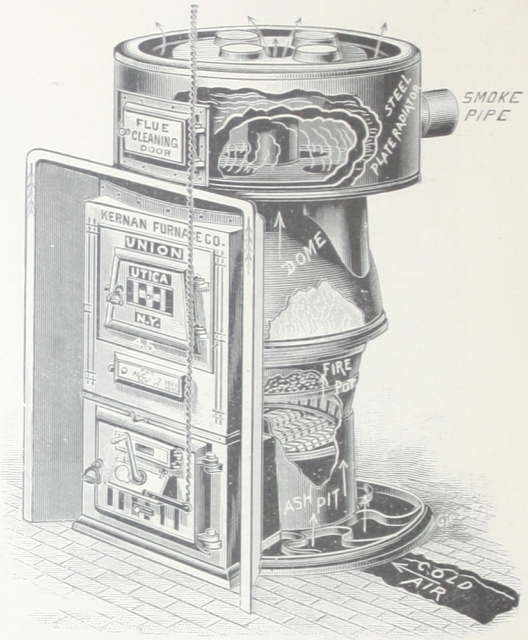
• • •

No. 36 less casings . .	$145.00	Casings, net	$10.00
" 42 " " . .	180.00	" "	12.00
" 45 " " . .	215.00	" "	14.00
" 51 " " . .	255.00	" "	18.00

Discount . . . . . per cent.

For dimensions see page 23.

UNION.



Brick Set with Steel Plate Radiator.

FOR HARD OR SOFT COAL.

Including Man Hole Door, Water Pan and Patent Draft Regulator.

• • •

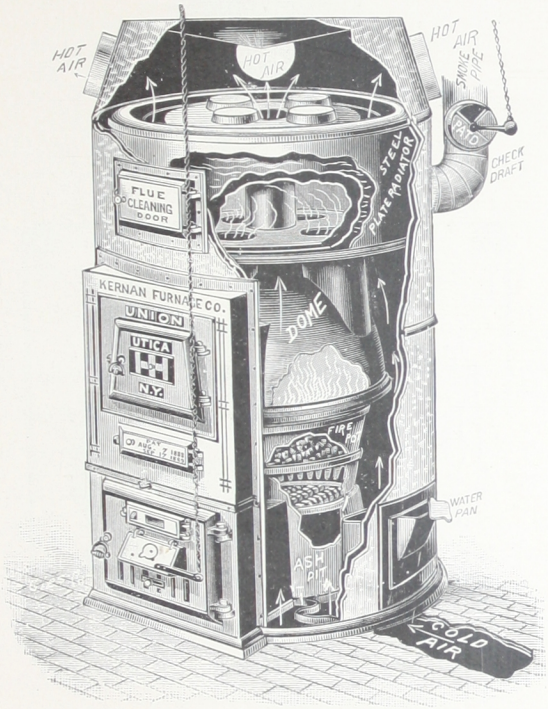
No. 36	$146.00	No. 45	$210.00
" 42	177.00	" 51	250.00

Discount . . . . . per cent.

Covering Bars, per set, extra, net $3.00
Sheet Iron Convex Top, extra, net 3.00

For dimensions see page 23.

UNION.

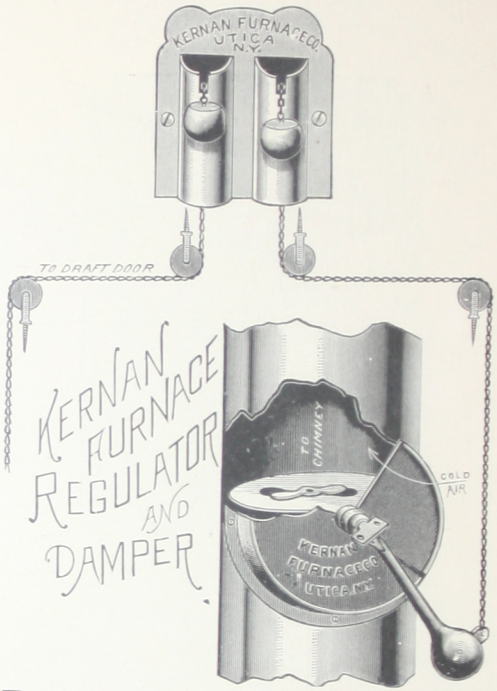


Portable with Steel Plate Radiator.

FOR HARD OR SOFT COAL.

No. 36 less casings . .	$134.00	Casings, net	$10.00
" 42 " " . .	165.00	" "	12.00
" 45 " " . .	198.00	" "	14.00
" 51 " " . .	238.00	" "	18.00

For dimensions see page 23.



Patent Draft Regulator.

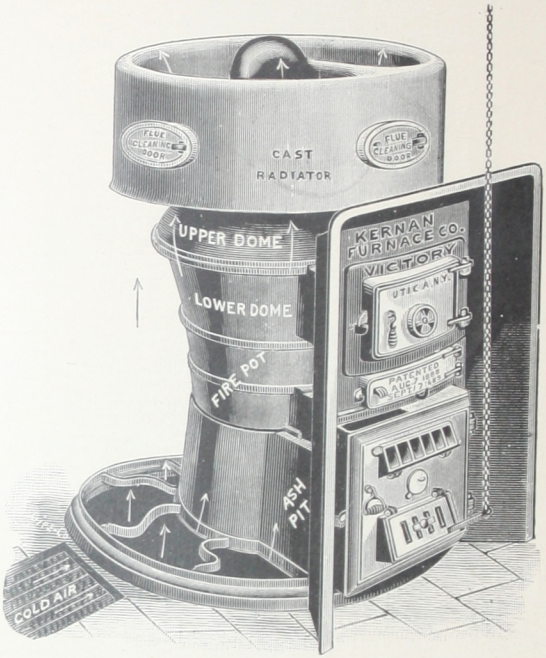
A SAVING of fuel can be accomplished by the proper construction of a *check draft damper*. The above cut represents o which while easily adjusted, can be operated by chains from abov or removing the *ball attachment* operated in the cellar. T construction of the damper is such that not only is the draft checke but the capacity of the pipe, owing to the damper within, reduce thus retarding the combustion, admitting of sufficient space on for exit of gases; therefore our patent check draft damper not on *controls* the *draft*, but economizes the consumption of fuel.

VICTORY.

PORTABLE AND BRICK SET.

NO BOLTS used in its connecting parts. Ash pit, fire pot, dome and radiator connected by sand cup joints. Ash pit deep, ash pit door large, clinkers and ashes easily removed. Our patent hexagonal, anti-clinker, revolving bar, dumping grate, (see page 24), dust flue; sectional fire-pot and dome, insuring strength and durability. Radiator receiving all the particles of combustion causing same to traverse its entire circuit before reaching smoke exit. The dome increases in diameter from bottom of lower section to its central point; thence contracting toward radiator connection, giving an enlarged chamber immediately over fire pot surface. Outer circle of radiator extends beyond extreme diameter of dome, thus compelling the air entering through base rings to impinge lower dome and naturally pass over upper dome into and through the air space surrounded by the radiator flue. Our patent draft regulator is included with every furnace. If desired we can send lift damper instead of patent draft regulator.

VICTORY.



Brick Set with Cast Iron Radiator.

No. 128	$ 85.00	No. 142	$190.00
" 132	120.00	" 145	225.00
" 136	156.00		

Brick Set with Steel Plate Radiator.

No. 128	$ 80.00	No. 142	$177.00
" 132	110.00	" 145	210.00
" 136	146.00		

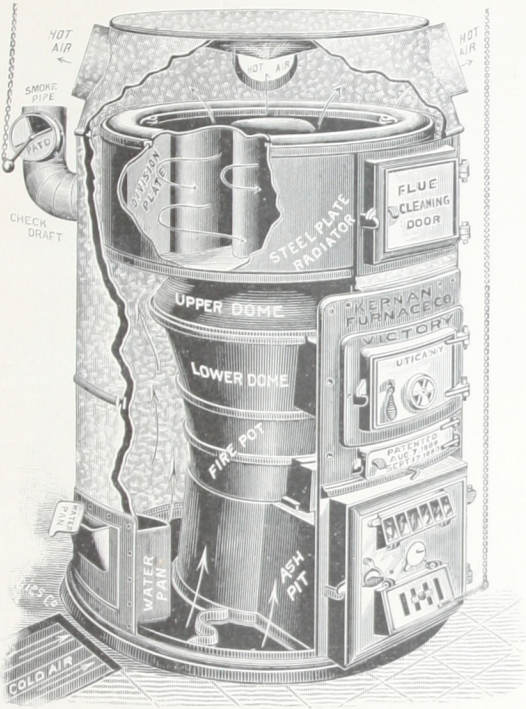
Discount . . . . . per cent.

Covering Bars, per set, extra, net $3.00

Sheet Iron Convex Top, extra, net 3.00

For dimensions see page 23.

VICTORY.



Portable with Steel Plate Radiator.

No. 128 less casings . . .	$ 75.00	No. 142 less casings	$165.00
" 132 " "	100.00	" 145 " "	198.00
" 136 " "	134.00		

• • •

Portable with Cast Iron Radiator.

No. 128 less casings	$ 80.00	No. 142 less casings	$180.00
" 132 " "	110.00	" 145 " "	215.00
" 136 " "	145.00		
Discount	*per cent.*		
No. 128 casings, net	$ 6.00	No. 142 casings, net	$12.00
" 132 " "	8.00	" 145 " "	14.00
" 136 " "	10.00		

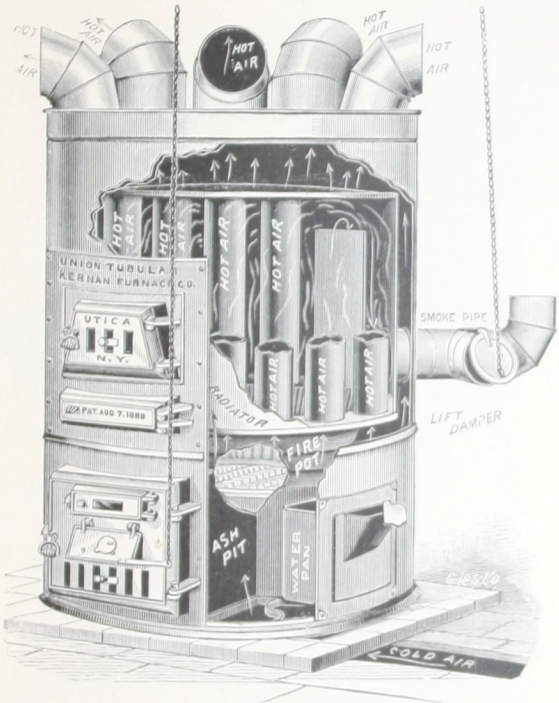
For dimensions see page 23.

UNION TUBULAR.

PORTABLE AND BRICK SET.

THE Union Tubular has the same deep ash pit, large ash pit door, patent hexagonal, anti-clinker, revolving bar, dumping grate, dust flue, and sectional fire pot as the Union Furnace. A heavy steel plate tubular radiator or drum with a revertible flue rests upon the fire pot and projects out beyond its edge. The outer shell of this drum is *steel plate* while within at each side and around toward the back is a row of *wrought iron seamless boiler* tubes. Directly at the back is a diving flue connected to the smoke exit. By means of this diving flue the combustion, not as in the ordinary furnaces of this style, going directly to the smoke pipe between the tubes, *is compelled* after encircling the tubes to rise to the top of the tubular radiator before entering diving flue. A continuous supply of air passes upward, surrounding the steel radiator and through the boiler iron tubes, being in turn *surrounded by a highly heated radiating* surface, on its passage to the warm air pipes.

UNION TUBULAR.



Portable with Seamless Wrought Iron Tubes.

No. 36 less casings	$134.00	Casings, net	$10.00
" 42 " "	165.00	" "	12.00
" 45 " "	198.00	" "	14.00

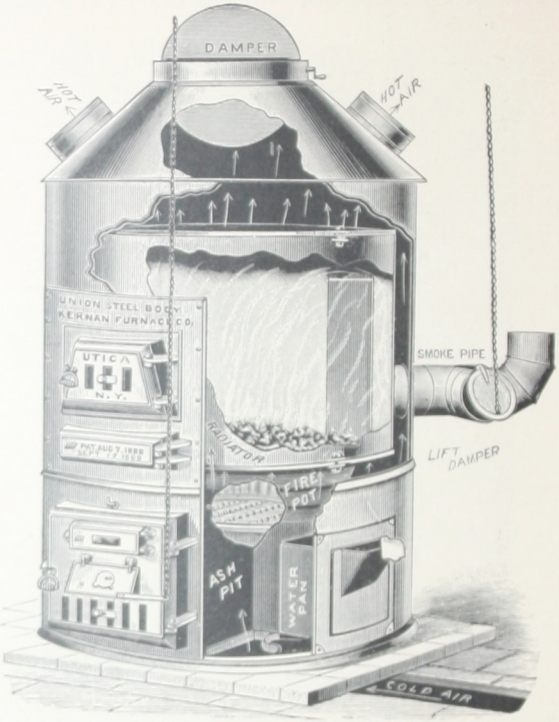
• • •

Brick Set with Seamless Wrought Iron Tubes.

No. 36 including man hole door and water pan	$146.00
" 42 " " " " "	177.00
" 45 " " " " "	210.00
Discount . . . . . per cent.	
Covering Bars, per set, extra, net	$3.00
Sheet Iron Convex Top, extra, net	3.00

For dimensions see page 23.

UNION STEEL BODY



Portable.

No. 36 less casings	$100.00	Casings, net	$10.00
" 42 " "	120.00	" "	12.00
" 45 " "	150.00	" "	14.00

• • •

Brick Set.

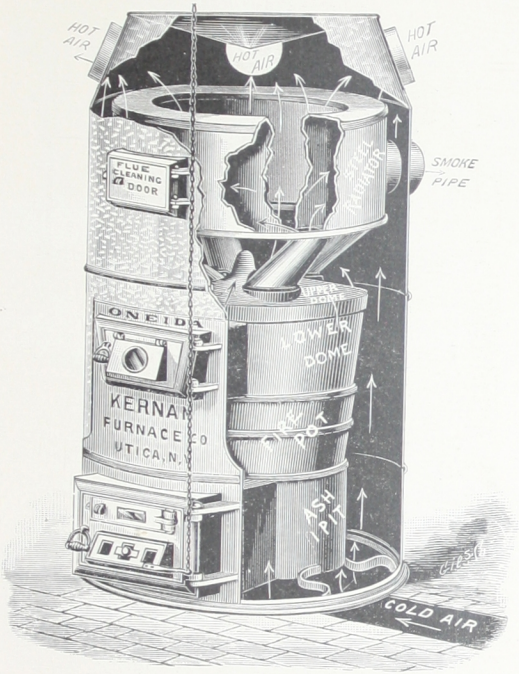
No. 36 including man hole door and water pan	$110.00
" 42 " " " " " "	130.00
" 45 " " " " " "	165.00
Discount . . . . . *per cent.*	

Covering Bars, per set, extra, net	$3.00
Sheet Iron Convex Top, extra, net	3.00

A POWERFUL, low price, revertible flue, quick heating furnace. Large ash-pit and our patent hexagonal shaking and dumping grate, dust flue, sectional fire pot and steel plate drum. Our patent draft regulator is included with every furnace. If desired we can send lift damper instead of patent draft regulator.

For dimensions see page 23.

ONEIDA.



Portable.

No. 36 less casings .	$112.00	Casings, net	$10.00
" 40 " " .	124.00	" "	12.00

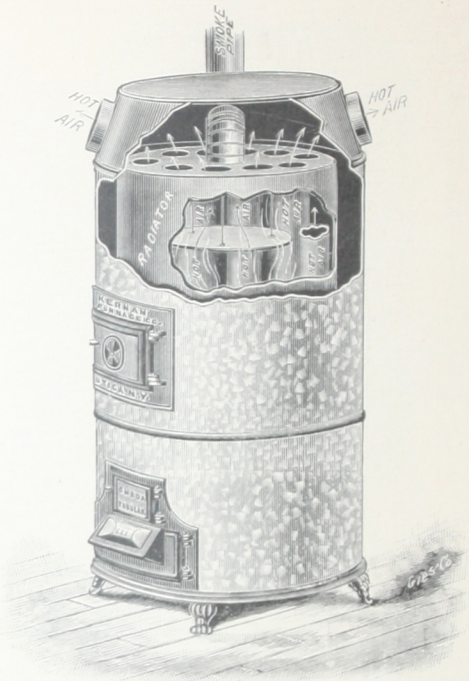
Discount . . . . . per cent.

A MEDIUM price furnace with cast iron body and steel plate radiator; deep ash pit, draw center grate with rake off through ash pit door, dust flue, sectional fire pot and sand-up joints; large radiating surface. A powerful and economical heater.

Our patent draft regulator is included with every furnace. If desired, we can send lift damper instead of patent draft regulator.

For dimensions see page 23.

ONEIDA TUBULAR.



Portable.

No. 30 less casings . . $70.00 | Casings, net $6.00

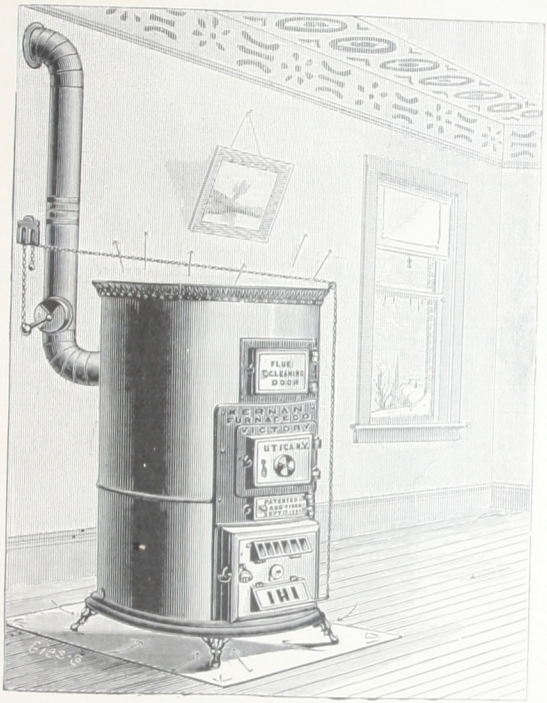
THE Oneida Tubular meets a want often felt by dealers and consumers of warm air furnaces. A small heater suitable in size to warm one or two rooms. While limited in capacity, the Oneida Tubular is durable in construction and has the many conveniences of our other furnaces.

For the purpose of heating a store, a large room, bar-room, or the first floor of a small house, it cannot be excelled, and we can warrant perfect satisfaction.

For dimensions see page 23.

VICTORY.

SCHOOL, STORE OR OFFICE HEATER.



FIVE SIZES.

NET PRICES.

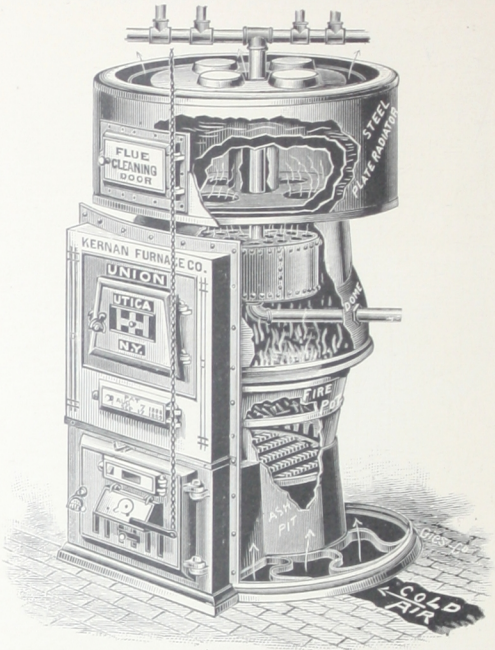
128,	Victory complete with Russia Iron Casings	$34.00
132,	" " " " " "	44.00
136,	" " " " " "	56.00
142,	" " " " " "	70.00
145,	" " " " " "	82.00

• • •

WING to lack of height in cellar or construction of building a furnace often times cannot be set to advantage. In such cases we recommend our Victory Heater, handsomely encased with Russia Iron and finished with an ornamental top ring. The expense of this heater differs little from the cost of a surface, or base burner stove, and is of greater efficiency in ting heat A stove is a *direct agent* of heat, warming the air that comes in contact with its ce; thus at times portions of a room are either uncomfortably warm or cold. The Victory eris an *indirect agent* of heat, and thorough circulation is affected, air entering at the base of the ce, passing over the heated surface and escaping at the top; a continuous current of warm air s discharged into the room and unlike the effects of *direct* radication *all* parts are heated alike.

For dimensions see page 23.

Union Combination Heater.



WARM AIR AND HOT WATER.

PORTABLE.

No. 36 less casings	$190.00	Casings, extra, net	$10 00
" 42 " "	240.00	" " "	12.00
" 45 " "	280.00	" " "	14 00
" 51 " "	350.00	" " "	18.00

BRICK SET.

Including Man Hole Door, Water Pan and Patent Draft Regulator.

No. 36	$200.00	No. 45	$295.00
" 42	250.00	" 51	360.00

Discount . . . . . per cent.

UNION combination, warm air and hot water heater, is constructed from all cast-iron, or, if preferred with steel plate radiator. A steel plate tubular boiler is suspended within the *dome* of the furnace immediately over and above the fire, so that the combustion after impinging the inner walls of dome on its passage to the radiator, passes through and encircles the boiler. This hot water radiation is accomplished without detracting from the volume of warm air radiated. The size of boiler can be adapted to the work required. As the cut shows, the water enters at the base of the boiler and is discharged or flows from the top. The expansion tank once filled, the system is self-working, requiring no care or attention, and, unlike steam, *void* of any dangerous results. In shipping, the boiler is mounted within the dome, securely fastened, ready to receive its outer connections.

DIMENSIONS AND WIDTHS TO CUT CASINGS

DIMENSIONS AND WIDTHS TO CUT CASINGS.

	Diameter of Grate.	Diameter of Fire Pot.	Depth of Fire Pot.	Diameter of Casings.	Height of Castings.	Height of Casings.	Heating Capacity.	Width to cut, Galv. Iron for Casings. Bottom.	Top.
No. 38, Kernan,	16 inch.	19 inch.	12 inch.	38 inch.	4 ft. 6 inch.	5 ft. 4 inch.	12,000 to 15,000 cu. ft	21 inches.	30 inches.
" 42, "	18 "	21 "	12 "	42 "	4 " 10 "	5 " 9 "	15,000 to 20,000 "	22 "	30 "
" 46, "	21 "	24 "	12 "	46 "	5 "	6 "	20,000 to 30,000 "	23 "	30 "
" 52, "	23 "	26 "	12 "	50 "	5 " 2 "	6 " 2 "	30,000 to 40,000 "	24 "	30 "
" 36, Union,	17 "	21 "	14 "	36 "	4 " 8 "	5 " 7 "	12,000 to 15,000 "	24 "	30 "
" 42, "	18 "	23½ "	14 "	40 "	4 " 8 "	5 " 7 "	15,000 to 20,000 "	24 "	30 "
" 45, "	20 "	27 "	16 "	45 "	5 " 3 "	6 " 3 "	20,000 to 30,000 "	30 "	30 "
" 51, "	22 "	30 "	16 "	51 "	5 " 4 "	6 " 4 "	30,000 to 40,000 "	30 "	30 "
" 128, Victory,	13 "	16 "	12 "	28 "	3 " 10 "	4 " 8 "	6,000 to 9,000 "	19 "	26 "
" 132, "	15 "	18 "	12 "	32 "	4 "	4 " 10 "	9,000 to 12,000 "	20 "	26 "
" 136, "	17 "	20 "	13 "	36 "	4 " 4 "	5 " 3 "	12,000 to 15,000 "	24 "	24 "
" 142, "	18 "	24 "	15 "	40 "	4 " 7 "	5 " 6 "	15,000 to 20,000 "	24 "	28 "
" 145, "	20 "	26 "	17 "	45 "	5 "	6 "	20,000 to 30,000 "	28 "	30 "
" 36, Union Tubular,	17 "	20 "	13 "	36 "	4 " 2 "	5 "	12,000 to 15,000 "	24 "	28 "
" 42, "	18 "	24 "	14 "	40 "	4 " 2 "	5 " 1 "	15,000 to 20,000 "	24 "	30 "
" 45, "	20 "	26 "	14 "	45 "	4 " 3 "	5 " 3 "	20,000 to 30,000 "	28 "	28 "
" 36, Union Steel Body,	17 "	20 "	13 "	36 "	4 " 2 "	5 "	10,000 to 13,000 "	24 "	28 "
" 42, "	18 "	24 "	14 "	40 "	4 " 2 "	5 " 1 "	13,000 to 17,000 "	24 "	30 "
" 45, "	20 "	26 "	14 "	45 "	4 " 3 "	5 " 3 "	17,000 to 23,000 "	28 "	28 "
" 36, Oneida,	18 "	20 "	13 "	36 "	4 " 10 "	5 " 9 "	8,000 to 12,000 "	13½ "	28-14½ "
" 40, "	18 "	20 "	13 "	40 "	4 " 10 "	5 " 9 "	12,000 to 14,000 "	13½ "	28-14½ "
" 30, Oneida Tubular,	10½ "	16½ "	18 "	30 "	4 " 2 "	5 "	5,000 to 8,000 "	24 "	24 "

These estimates of the heating capacities of the different sizes of Kernan, Union and Victory Furnaces, are low, and where the Furnaces are properly set, can with certainty be depended upon. When the furnaces are set to heat one large room, for instance, a school room, public hall, or a church, and when one register is placed directly over the furnace, and all the radiating capacity of the furnace passes directly into and out of this register, there being little or no friction from the hot air pipes to overcome, twenty-five (25) per cent. can be added to the capacity of the different sizes as given. In such cases we recommend the following sizes of hot air pipes and registers; these registers should, in all cases, be used without valves:

No. 128 Furnace, 14 in. pipe, Round Reg., 16 in. Sq. Reg., 14x22 in.
" 132 " 16 " " " 20 " " 16x24 "
" 136 " 20 " " " 24 " " 20x24 "

No. 142 Furnace, 23 in. pipe, Round Reg., 26 in. Sq. Reg., 27x27 in.
" 145 " 26 " " " 30 " " 30x30 "
" 52 " 30 " " " 36 " " 27x38 "

In all cases where possible, a pit should be built under the furnace, of brick and mortar, and a mouth built of the same material extending out on one side; to this mouth connect the air supply, and when the air is taken from outside of building, the capacity of coal air box should not be less than two-thirds the capacity of the hot air pipe. When the air is furnished from the inside of the building, use the same size face plate as is used over the hot air pipe.

PATENT HEXAGONAL

Shaking and Dumping Grate.

A SELF-CLEANING, anti-clinker, rotating bar, dumping grate. The bars are so constructed that the air passes between and reaches the center of each. The triangular grate bars are, without bolts, suspended within a *removable grate frame* so constructed as to give a center support to each bar, thus affording three supports for every triangular bar. The grate frame or any grate bar can be easily replaced through the ash pit door. Grate simple and durable and at all times effective in removing clinkers, agitating or dumping the fire. The ash pit is constructed with a mica door, through which a poker can be inserted over the grate surface, and the clinkers, if any, easily removed.

PRICE LIST OF

Hot-Air Pipes, Register Boxes and Elbows.

Round Pipe—Per Foot.

ch	$0.21	14 inch	$0.42
	.24	15 "	.45
	.27	16 "	.50
	.30	18 "	.60
	.33	20 "	.70
	.36		

Oval Tin Pipe—Per Foot.

	$0.32	9 inch $0.36	10 inch $0.40

Square Pipe—Per Foot.

	$0.24	3 x 12	$0.36	4 x 10	$0.40
	.30	4 x 8	.32	4 x 12	.48
os Covering, per foot					.20

Round Tin Elbows.

h	$0.42	14 inch	$0.84
	.48	15 "	.90
	.54	16 "	.96
	.60	18 "	1.04
	.72		

Register Boxes.

	$0.50	12 x 17	$1.00	20 x 20	$2.00
	.60	12 x 19	1 20	24 x 24	2 25
	.70	16 x 24	1.50	30 x 30	2 50
	.80	16 x 16	1.75	36 x 36	3 00
	.90				

Double Head Register Box	$1 50
Single " "	1.25
Shoe, 8 inch Collar	1.00

Smoke Pipe—Per Joint.

ommon	$0.25	7 in,	Common	$0.30	9 in,	Common	$0.40
alvanized	.30	7 "	Galvanized	.40	9 "	Galvanized	.50
ussia	.40	7 "	Russia	.50	9 "	Russia	.60

Smoke Pipe Elbows.

ommon	$0 25	7 in,	Common	$0.30	9 in.,	Common	$0.40
alvanized	.30	7 "	Galvanized	40	9 "	Galvanized	.50
ussia	40	7 "	Russia	.50	9 "	Russia	.60

ed Iron Collars	.20
ed Iron Check Damper	.75
n Lift Damper	1 00
heck Draft, 7 in	1.00
heck Draft, 8 in	1.25

WE GIVE THE FOLLOWING TABLE OF ESTIMATED

Capacity of Pipes and Registers.

ROUND PIPES.

Diameter of Pipe.	Area in Square Inches.	Diameter of Pipe.	Area in Square Inches.	Diameter of Pipe.	Area in Square Inches.
7 inch.	38	12 inch.	113	22 inch.	380
8 "	50	14 "	154	24 "	452
9 "	63	16 "	201	26 "	531
10 "	78	18 "	254	28 "	616
11 "	95	20 "	314	30 "	707

REGISTERS.

Size of Opening.	Capacity in Square Inches.	Size of Opening.	Capacity in Square Inches	Size of Opening.	Capacity in Square Inches.
6 x 10	40	10 x 14	93	20 x 20	267
8 x 10	53	10 x 16	107	20 x 24	320
8 x 12	64	12 x 15	120	20 x 26	347
8 x 15	80	12 x 19	152	21 x 29	406
9 x 12	72	14 x 22	205	27 x 27	486
9 x 14	84	15 x 25	250	27 x 38	684
10 x 12	80	16 x 24	256	30 x 30	600

ROUND REGISTERS.

Size of Opening.	Capacity in Square Inches.	Size of Opening.	Capacity in Square Inches.	Size of Opening.	Capacity in Square Inches.
7 inch.	26	12 inch.	75	20 inch.	209
8 "	33	14 "	103	24 "	301
9 "	42	16 "	134	30 "	471
10 "	52	18 "	169	36 "	679
				48 "	1,000

Size of Hot Air Pipes and Registers to be used in

First Floor Rooms.

Register.	Pipe.	Rooms.	Ceiling.	Register.	Pipe.	Rooms.	Ceiling.
12 x 15	12 in.	16 x 16 to 18 x 20	11 ft.	10 x 14	10 in.	14 x 14 to 15 x 15	10 ft.
Register.	Pipe.	Rooms.	Ceiling	Register.	Pipe.	Rooms.	Ceiling.
9 x 12	9 in.	12 x 12 to 14 x 15	9 ft.	8 x 12	8 in.	8 x 12 to 13 x 13	9 ft.

Second Floor Rooms.

Register.	Pipe.	Rooms	Ceiling	Register.	Pipe.	Rooms.	Ceiling.
10 x 14	10 in.	16 x 16 to 18 x 20	10 ft.	9 x 12	9 in.	14 x 14 to 16 x 16	9 ft.
Register.	Pipe.	Rooms.	Ceiling.	Register.	Pipe.	Rooms.	Ceiling.
8 x 12	8 in.	10 x 10 to 13 x 14	8 ft	8 x 10	7 in.	7 x 12 to 12 x 12	8 ft.

Vertical Wheel Registers and Ventilators.

JAPANNED—BLACK OR WHITE.

Size of Opening.	Register.	Without Valves.	Register Face.	Ventilator for Cords.	Floor Border.	Wall Frame.
4½ x 6½	1.40	0.90	0.46	1.50		0.40
4 x 8	1.50	1.00	0.48	1.60		0.40
4 x 10	1.65	1.15	0.50	1.75		
4 x 13	2.00	1.40	0.65	2.10		
4 x 15	2.30	1.60	0.75	2.40		
4 x 18	2.50	1.75	0.85	2.62		
6 x 6	1.80	1.20	0.60	1.90		
6 x 8	1.90	1.20	0.65	2.00	1.15	0.50
6 x 9	2.00	1.30	0.68	2.10	1.20	
6 x 10	2.10	1.45	0.70	2.20	1.25	0.60
6 x 14	2.70	1.95	0.90	2.80	1.45	0.65
6 x 16	3.00	2.10	1.10	3.10	1.55	
6 x 18	3.40	2.40	1.35	3.52	1.75	0.70
6 x 24	6.36	4.25	2.15	6.50	2.50	1.20
7 x 7	2.10	0.45	0.70	2.20	1.15	0.60
7 x 10	2.30	1.60	0.75	2.40	1.30	0.60
8 x 8	2.25	1.50	0.80	2.35	1.30	0.60
8 x 10	2.50	1.75	0.85	2.62	1.40	0.70
8 x 12	2.80	2.00	1.00	2.92	1.50	0.80
8 x 15	3.60	2.55	1.50	3.72	1.80	0.90
8 x 18	4.20	3.05	1.75	4.32	2.00	1.00
9 x 9	2.65	1.85	1.00	2.75	1.40	0.90
9 x 12	3.30	2.35	1.25	3.42	1.55	0.90
9 x 13	3.45	2.45	1.35	3.60	1.60	0.95
9 x 14	3.60	2.55	1.50	3.72	1.65	1.00
10 x 10	3.25	2.30	1.20	3.37	1.70	1.00
10 x 12	3.60	2.55	1.50	3.72	1.80	1.00
10 x 14	4.25	2.90	1.85	4.40	1.90	1.10
10 x 16	4.75	3.25	2.15	4.90	2.00	1.20
10 x 18	6.00	4.45	2.45	6.15	2.20	
10 x 20	6.75	5.10	2.80	6.90	2.40	1.30
12 x 12	5.00	3.65	2.10	5.15	2.00	1.00
12 x 15	6.00	4.45	2.40	6.15	2.40	1.20
12 x 16	6.50	4.75	2.60	6.65	2.50	
12 x 17	6.75	5.10	2.80	6.90	2.60	1.30
12 x 18	7.00	5.40	3.00	7.15	2.70	1.40
12 x 19	7.50	5.70	3.20	7.65	2.80	1.40
12 x 20	8.00	6.00	3.40	8.15	3.00	1.50
12 x 24	9.75	6.50	3.90	9.90	3.35	1.75
14 x 14	7.50	5.70	3.15	7.65	2.65	1.50
14 x 16	8.00	6.00	3.30	8.15	2.90	
14 x 18	8.75	6.30	3.50	8.90	3.15	1.60
14 x 20	9.50	6.60	3.70	9.65	3.40	
14 x 22	10.00	6.90	3.90	10.15	3.70	1.80
15 x 25	13.00	9.25	6.00	13.25	4.25	4.00
16 x 16	9.25	6.15	3.90	9.40	3.40	1.65
16 x 20	10.50	7.75	4.95	10.75	3.80	2.00
16 x 24	13.00	9.25	6.00	13.25	4.35	4.00
18 x 24	14.50	10.25	6.75	14.75	5.50	
20 x 20	13.50	9.65	6.50	13.75	4.75	4.00
20 x 24	15.00	10.65	7.00	15.25	6.00	4.25
20 x 26	17.00	12.00	7.50	17.25	6.75	4.50
21 x 29	20.00	14.00	8.20	20.50	7.00	
24 x 24	20.00	14.00	8.20	20.50	7.00	5.00
27 x 27	25.00	18.00	10.70	25.50	7.50	5.00
27 x 38	33.00	24.00	14.00		8.00	
30 x 30	30.00	21.00	13.00		7.50	5.00

EXTRA HEAVY, FOR STORES, ETC.

20 x 24	19.00	14.50	10.25		7.50	
27 x 27	30.00	21.00	12.00		7.50	
27 x 38	35.00	26.00	16.00		8.00	

VERTICAL WHEEL REGISTERS.

BRONZED: To Imitate Gold, Silver, Copper, or Bronze Metal.			Plated: Nickel, Electro-Brass, Bronze or Copper.	
Size of Opening.	Register.	Floor Border.	Register.	Floor Border.
4½x 6½	1.90		2.95	
4 x 8	2.00		3.25	
4 x 10	2.18		3.50	
4 x 13	2.55		4.00	
4 x 15	2.85		4.25	
4 x 18	3.10		4.80	
6 x 6	2.30		3.75	
6 x 8	2.50	1.35	3.75	2.80
6 x 9	2.55	1.40	3.95	2.90
6 x 10	2.65	1.50	4.10	3.00
6 x 14	3.25	1.80	5.00	3.40
6 x 16	3.60	1.90	5.40	3.60
6 x 18	4.10	2.10	5.85	3.80
6 x 24	7.40	3.00	10.00	5.50
7 x 7	2.65	1.35	4.05	2.80
7 x 10	2.90	1.50	4.50	3.40
8 x 8	2.80	1.55	4.50	3.30
8 x 10	3.10	1.65	4.85	3.50
8 x 12	3.45	1.80	5.20	3.60
8 x 15	4.35	2.15	6.15	4.50
8 x 18	5.00	2.40	6.95	5.00
9 x 9	3.25	1.65	5.00	3.50
9 x 12	4.00	1.95	5.70	3.70
9 x 13	4.20	2.00	5.95	3.90
9 x 14	4.35	2.05	6.20	4.10
10 x 10	3.90	2.10	5.65	3.70
10 x 12	4.35	2.15	6.15	4.05
10 x 14	5.15	2.30	6.85	4.40
10 x 16	5.65	2.50	7.45	4.75
10 x 18	7.00	2.75	8.65	5.05
10 x 20	7.80	2.90	9.45	5.40
12 x 12	5.90	2.50	7.55	4.50
12 x 15	7.00	2.90	8.65	5.35
12 x 16	7.65	3.00	9.20	5.50
12 x 17	7.80	3.10	9.45	5.65
12 x 18	8.15	3.25	9.95	5.80
12 x 19	8.60	3.40	10.20	6.00
12 x 20	8.90	3.60	10.80	6.20
12 x 24	10.75	4.00	13.05	7.40
14 x 14	8.60	3.15	10.20	6.00
14 x 16	9.25	3.45	11.45	6.50
14 x 18	9.85	3.70	12.50	7.00
14 x 20	10.50	4.00	13.20	7.50
14 x 22	11.25	4.35	13.75	8.00
15 x 25	15.00	5.20	17.45	10.00
16 x 16	10.25	4.25	12.30	7.00
16 x 20	11.40	4.65	14.00	7.95
16 x 24	15.00	5.20	17.75	9.75
20 x 20	15.50	5.65	18.10	10.40
20 x 24	17.00	7.20	21.20	14.75
20 x 26	19.00	8.00	24.90	15.55
21 x 29	22.25	8.25	28.25	16.50
24 x 24	22.25	8.25	28.25	16.50
27 x 27		9.00	31.75	
30 x 30		9.50	36.00	

CIRCULAR TOP VERTICAL WHEEL REGISTERS.
JAPANNED—BLACK OR WHITE.

ize of ening.	Register.	Register Face.	Ventilator for Cords.	Adjustable Summer Piece.	Wall Frame.
x 10	2.25	0.90	2.35	5.00	
x 12	2.95	1.15	3 10	5.00	
x 14	3 40	1.30	3 55	5.00	
x 12	3.40	1 30	3 55	5 00	1.30
x 14	4.10	1.75	4 25	5.00	1 55
x 16	4.60	1 90	4 75	5 00	1.95
x 18	5.20	2 00	5.35	5.00	2.30
x 22	8 50	3 50			
x 13 Oval	3 55	1 55			
x 15 Oval	4 60	1 75			
x 17 Oval	6 50	2.50			

CONVEX REGISTERS AND VENTILATORS.
SELF-INDICATING.
For Shallow Flues and Thin Partitions.

e of ening.	Black or White Japanned.	Bronzed to Imitate Gold, Copper, or Bronze Metal.	Nickel Plated.	Face Japanned	Face Bronzed.	Wall Frame.
x 10	3.00	4 00	5.75	1.25	2.25	0.60
x 10	3 50	4 50	6 00	1.50	2 50	0 70
x 12	4.00	5 00	6 50	1 75	2.85	0.80
x 12	4 50	5.50	7 00	2 00	3.25	0 90
x 14	5.00	6.20	7 50	2 25	3.60	1 00
x 14	5 75	6 80	8.25	2 60	4.10	1 10
x 16	6.25	7 75	9 25	3.15	4.65	1.20
x 19	8 50	10 00	12.50	4.20	5 70	1 40
x 22	11.00	12.50	15 50	4 80	6 80	1 80

EXTRA HEAVY

RTICAL WHEEL REGISTERS AND VENTILATORS.
JAPANNED—BLACK OR WHITE.

ize of pening.	Register.	Without Valves.	Register Face.	Ventilator for Cords	Floor Border.	Wall Frame.
0 x 24	$19.00	$14.59	$ 9.00		$6 00	
7 x 27	30 00	21.00	11.50		7.00	
7 x 38	30.00		14.00		8 00	

ROUND, FLOOR, OR WALL REGISTERS.
Iron Borders and Ventilators with Fixtures for Cords.
JAPANNED—BLACK OR WHITE.

e of Opening.	Register.	Without Valves.	Register Face.	Ventilator for Cords.	Floor Border.
6 inch.	1 35	0 90	0 50	1 45	1.00
7 "	1 50	1.00	0.60	1.60	1.10
8 "	1 85	1.15	0.95	1 95	1.20
9 "	2 25	1.45	0 85	2 37	1 30
10 "	2.75	1.70	1.00	2 87	1.40
12 "	3 60	2.20	1 50	3.75	1.80
14 "	5 40	3 10	2.00	5.55	2.25
16 "	7 00	4.15	2 70	7.20	3.00
18 "	9.25	5 30	3.45	9.50	4 00
20 "	11 50	7 35	4 15	11.80	5 00
24 "	15 50	10.05	6 45	16.00	6.50
30 "	27 50	18.70	13.40	28.50	12 15

HEAVY ROUND GRATINGS.
WITHOUT VALVES. BLACK JAPANNED.

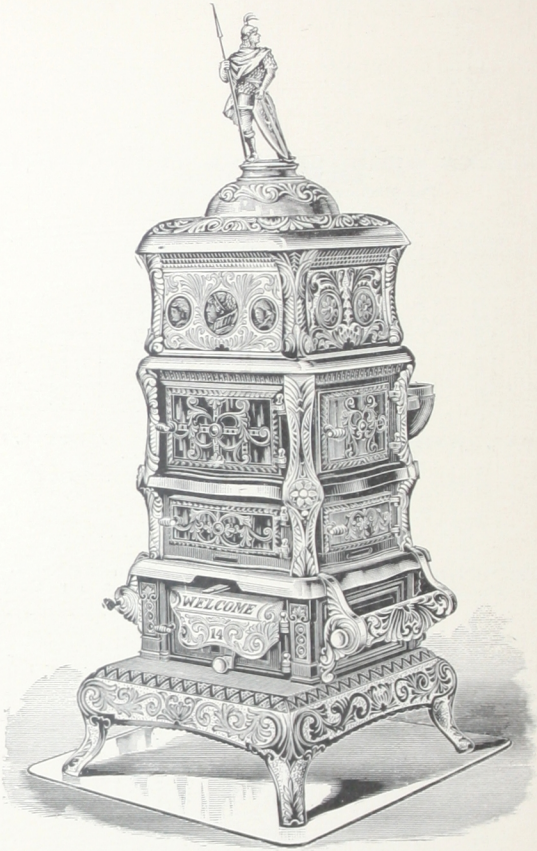
Size.	Grating.	Border.	Size.	Grating.	Border.
30 inch.	13.40	12 15	48 inch	38.25	20.00
36 "	19 65	19.00			

SMOKE PIPE REGISTERS AND BORDERS.

pening for Pipe.	Black Japanned.	Iron Border.	Ceiling Plate.
7, 8 and 9 inch.	3.00	2.50	2 00

Welcome Stoves and Ranges,

Manufactured by Syracuse Stove Works, Syracuse, N. Y

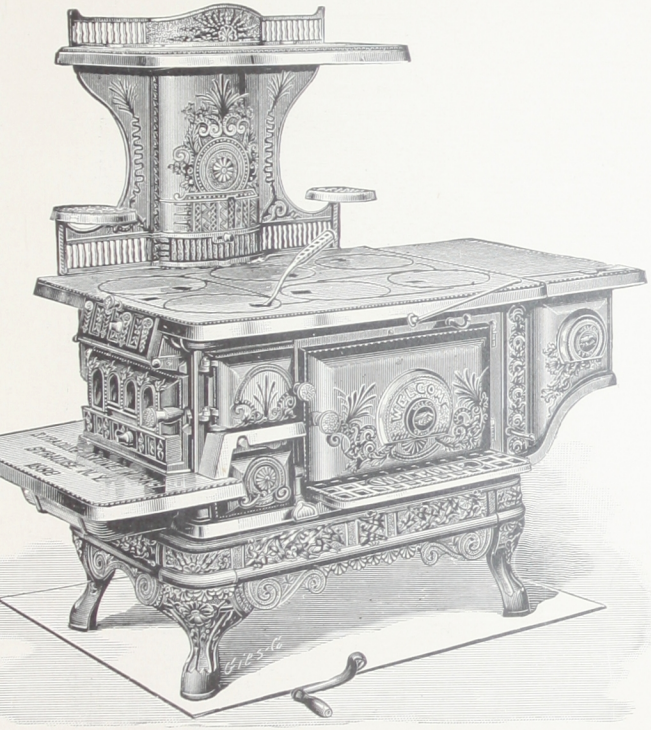


WELCOME SQUARE PARLOR.

FOUR Corner Flues; the heat carried to the base of stove, and then equally distributed; perfect system of circulation and ventilation; draw center and shaking grate, large ash pan; handsomely decorated; symmetrically proportioned.

Welcome Stoves and Ranges,

nufactured by Syracuse Stove Works, Syracuse, N. Y.



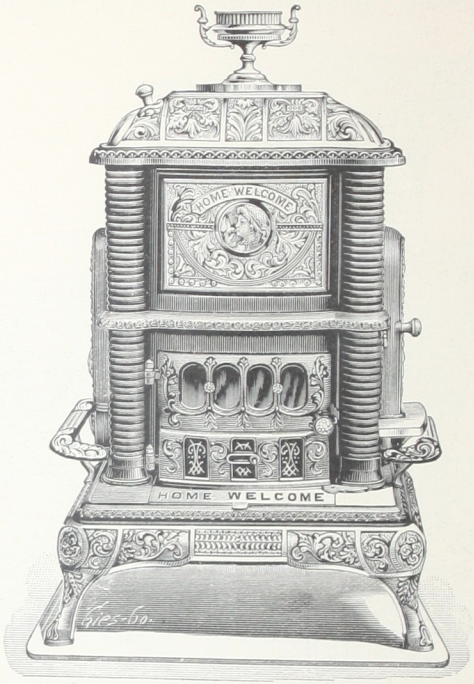
WELCOME 1889 RANGE.

Made in all desirable styles and sizes. For cooking and heat- they please the most exacting. For beauty of design and ness of finish they suit the most critical.

Examine and purchase a Welcome Range with latest rovements.

Welcome Stoves and Ranges,

Manufactured by Syracuse Stove Works, Syracuse, N. Y.



HOME WELCOME COTTAGE.

Three sizes Straight draft . . . . . Nos 22, 24 and 26.
One size. Revertible flue . . . . . No. 24.

Original in its Construction. Perfect in its Design.

A Perfect System of Circulation and Ventilation.

A durable heater. Heavy wood grate and fire back and deep ash pit.

Numbers indicate length of wood.

KERNAN FURNACE COMPANY,

MANUFACTURERS OF

KERNAN,

UNION,

VICTORY,

UNION TUBULAR,

UNION STEEL BODY,

ONEIDA,

ONEIDA TUBULAR

WARM AIR FURNACES,

AND

UNION COMBINATION

WARM AIR AND HOT WATER HEATERS.